Quarterly Review

Chemicals & Materials Q2 2019

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LINCOLN INTERNATIONAL

Polyurethane – A Versatile Material: Systems Houses and Their Value-Add in the Polyurethane Value Chain

by Dr. Thomas Schneider, Vice President at Lincoln International

Polyurethane (PU or PUR) is a versatile advanced material, formed by the chemical reaction of a di- or poly-isocyanate with a polyol. The two liquid components combined according to a specific ratio for a particular application are referred to as polyurethane system. The properties of the polyurethane material can be adjusted through blending of the polyol component, addition of additives or via the processing method. Polyurethane systems are often ready-to-use solutions which are precisely matched to customer requirements and specifically designed for predefined application of polyurethane processors and parts manufacturer, respectively.

Polyurethanes are used in various applications in numerous end markets which are driven by megatrends like population growth, urbanization and climate change. The main end industries for polyurethane are furniture & wood processing, construction, automotive & transport, electrical & electronic and shoe & footwear. Polyurethane is employed in various forms depending on application specific requirements, e.g. as rigid foam, flexible foam, coating, adhesive and sealant, elastomer or solid.

In furniture, the major applications of polyurethane are upholstered furniture cushions, interior trim, carpet cushions, and mattresses, all mainly based on flexible foams. In this field, special emphasis is on comfort. In the automotive and transport sector, polyurethane has a broad scope of applications, and is an integral part of automotive seats, head & armrests, body panels, acoustic foam, steering wheels, various seals, headliners, rear shelves, door panels, and spoilers. Nearly all auto seats are made out of polyurethane. In the field of construction, polyurethane materials are particularly popular due to their high energy efficiency, low emissions and wide capacity for decorative design. The insulation properties of polyurethane are also important in the field of electrical and electronic devices. Almost all refrigerators manufactured around the world are insulated with polyurethane rigid foams to lower energy consumption and reach higher energy efficiency. Polyurethane is also the preferred insulation material for other cooling units, such as refrigerated containers and displays. Moreover, Polyurethane represents a cost-effective material for the production of housings for sensitive electronic components.

In 2016, the global annual production of polyurethane raw materials MDI, TDI, polyether and polyester polyols amounted to approx. > 16 million tonnes, whereby Covestro (DE), Wanhua (CN), BASF (DE), Huntsman (US), and DowDuPont (US) represent the key producers in this field.

Customers in the polyurethane industry can be distinguished between part manufacturers with formulation capabilities and those who use polyurethane systems. The former are directly supplied with isocyanates (e.g. MDI) or polyols by the raw material producers. They formulate the polyol component itself according to their own needs or more specifically according to their own recipe, so that it fits into their applications and their production process. By contrast, the systems processors order a ready-to-use two-component polyurethane system – with a mostly pre-formulated polyol component including additives and an isocyanate component in the right stoichiometric ratio – which can be used directly in their production.

Furthermore, the industry can be segmented by volumes of purchases. Large scale customers with mostly standardized applications directly purchase isocyanates and polyols or polyurethane systems from the large polyurethane raw materials producers such as Covestro, Wanhua, BASF, Huntsman, and DowDuPont. In this segment, supplier substitution risk is relatively high. The supply and demand pattern is the main price driver. Increasing commoditization, high price/margin volatility and cyclicality are major market factors. In order to operate profitably, this highly competitive field demands excellent product quality, economies of scale achieved through world-scale plants, global production footprint, efficient supply and demand management, limited service complexity and established and proven sales relationships. In short, winning in the large volume polyurethane business means winning in a business, where capacity utilization is key.

The supply of polyurethane processors of small to medium volume, often specialized polyurethane niche applications with mostly value-added polyurethane systems, is primarily provided by the so-called systems houses. Self-formulators are seldom in this segment.

A polyurethane systems house is typically a small, local company (10-100 employees) or entrepreneurial entity that operates in defined segments of polyurethane and a certain region with high customer proximity and flexibility. They purchase raw materials (isocyanates, polyols and additives) and develop, produce and supply tailor-made, ready-to-use polyurethane systems – principally through polyol blending/formulation – which fit perfectly into the customer application and into the underlying production process. In addition to value-added polyurethane systems, systems houses often supply processing equipment and offer technical assistance/expertise to their customers.

Systems houses offer several advantages for polyurethane processors. They ensure consistency and quality of raw materials as well as providing these according to specifications often required by the processor's customers. Furthermore, polyurethane processors can use the systems house's technical experience for formulation development and processing technology. Generally, systems houses have the ability to provide support across all functions to its customers on the route to market: R&D and technical services, optimizing manufacturing processes, sales and marketing, and raw material sourcing.

The systems house business succeed if it possesses the following crucial characteristics: local presence and/or high customer proximity, deep technical understanding and excellent know-how, high flexibility and speed in production and logistics, elaborated market strategies by customer, technical sales force and the mind-set of a solution provider. On top of this, systems houses operate with an asset light set-up and the business is marked by lower cyclicality and limited tendency for commoditization, low risk of substitution, the direct access to new polyurethane applications as well as value based pricing.

To be part of this interesting segment and to participate as comprehensively as possible in the strong growing polyurethane industry, almost all large polyurethane raw material producers, such as Covestro, BASF, DowDuPont,

or Huntsman have set up a network of systems houses over the last 20 years mainly through the acquisition of smaller regionally focused competitors. The drivers, therefore, were access to polyurethane niche business, innovations and relevant data, an increase in customer proximity, outstanding growth expectations of the polyurethane industry or the use of the systems houses as additional sales channel of raw materials.

Due to the affiliation with a large raw material producer and backward integration, respectively, they are called "dependent" or "integrated." A great advantage of these systems houses is the secure supply of raw materials like MDI, TDI or polyols. The additives used are primarily purchased from third parties.

Systems houses, which do not belong to one of the big polyurethane raw material producers, are designated as "independent". These are mostly relatively small companies in private ownership with a regional or application-related niche focus. The supply of raw material is a critical success factor for the independent systems houses.

In a nut shell, systems houses "connect" the major raw material players with polyurethane processors of "niche" applications by providing tailored and ready-to-use polyurethane systems.

The sale of Covestro's European Systems Houses Business to H.I.G Capital: Creation of a Leading European Systems House

After a competitive sales process, Covestro signed an agreement with H.I.G. Capital to divest Covestro's European systems houses business which comprises systems houses in Denmark, Germany, The Netherlands and Spain as well as further business in Italy. Approximately 250 employees are generating annual sales of some EUR 230 million. Operations will continue at the current facilities while Covestro will continue to have strong ties with the systems houses as a key polyurethanes raw material supplier.

covestro

has sold its european systems houses business to

H.I.G. EUROPE

Sell-Side

Lincoln International acted as the exclusive financial advisor to the seller, managing a highly competitive M&A process with strong interest from various parties. This transaction demonstrates the firm's expertise and capabilities advising on complex chemicals transactions.

Diego König, Head of M&A at Covestro, said, "Lincoln International's strong team featuring in-depth chemicals expertise and a hands-on approach throughout the entire process were instrumental in driving a highly competitive process and achieving a successful transaction with the right buyer."

Dr. Thomas Schneider, Vice President at Lincoln International, commented, "We are proud to have advised Covestro in creating a leading independent European polyurethane systems house. Polyurethanes are very versatile materials, and systems houses, with their value chain position close to the material processor, are passionate about finding the right formulation for customer needs. We are convinced that H.I.G. Capital will leverage the significant intrinsic potential and grow the business organically as well as through strategic add-on acquisitions."

The key success factors of this complex transaction can be summarised as follows:

- Early involvement of M&A advisor in the M&A process
- Dedicated M&A and legal team at Covestro throughout the entire process
- Extensive preparation of the sales process
- Open and efficient communication between Covestro and all advisors
- Defined and coordinated external communication

The closing of the transaction is expected for the second half of 2019

Market Intelligence

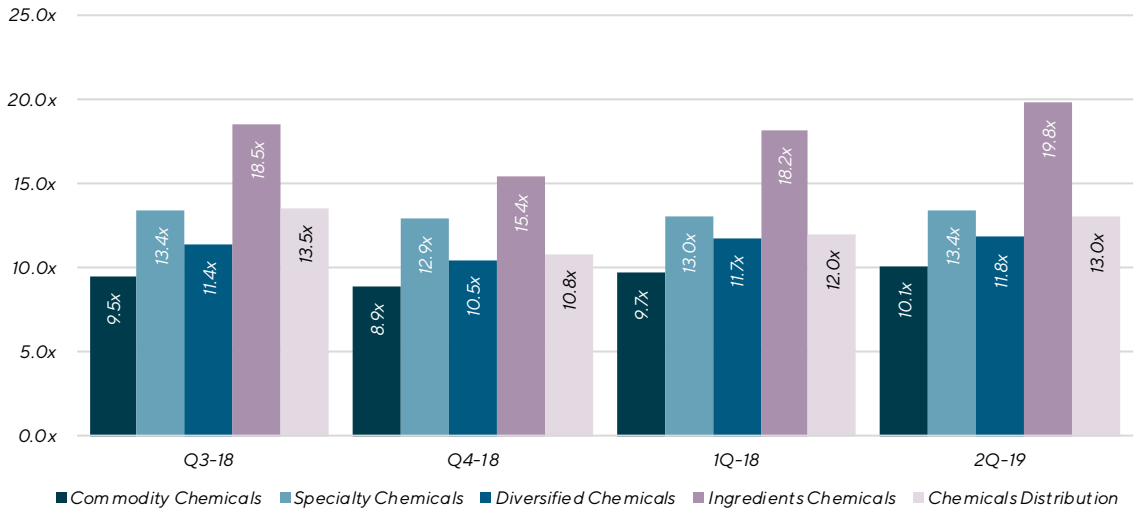
During Q2 2019, the Lincoln International chemicals & materials indexes and the S&P 500 remained in line with the prior quarter. Positive tailwinds for the industry included an increased supply in natural gas and NGLs, rise in investments within the U.S. chemical industry and production gains. Factors that hampered growth during the quarter were the slowing global economy, rising trade tensions, mixed manufacturing activity, unusual weather affecting agricultural production and chemical exports being down from a year ago. As a result, chemicals & materials EV/EBITDA multiples were flat to Q1 2019.

Q2 2019 chemical production showed improvement, with the strongest geographies being North America, Latin America, the Former FSU, Africa, Middle East and the Asia-Pacific. The strongest performers in Q2 2019 were petrochemicals and organics, synthetic rubber, manufactured fibers, coatings and other specialties. While weakness was observed in agricultural related chemicals, inorganic chemicals and plastic resins.

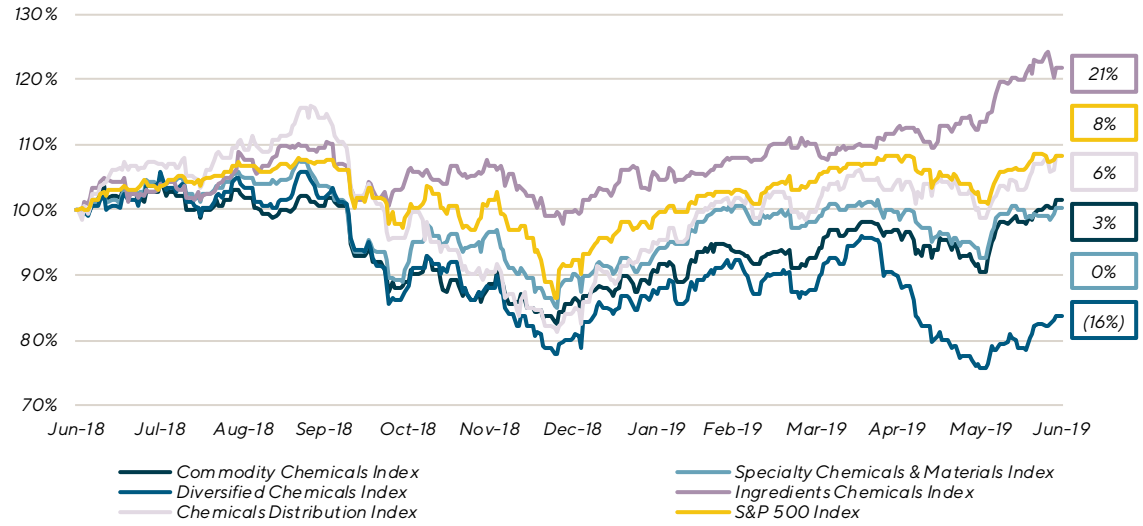
Source: American Chemistry Council

Chemicals & Materials Public Comparables

Enterprise Value / LTM EBITDA



Stock Market Performance



Public Company Valuation Statistics (6/30/19)

Sector	Number of Companies	Quarterly Stock Performance	% of 52 Week High	EV / CY19E Revenue	EV / CY19E EBITDA	P / E Multiple	Net Debt / CY19E EBITDA	CY19E Growth Revenue	CY19E Growth EBITDA	CY19E Margin Gross	CY19E Margin EBITDA
Commodity Chemicals	14	1.6%	69.9%	1.64x	9.9x	15.5x	1.6x	4.3%	9.3%	23.7%	16.3%
Specialty Chemicals	29	3.4%	86.6%	2.22x	13.1x	18.0x	1.8x	2.3%	11.4%	27.9%	16.7%
Diversified Chemicals	11	(1.1%)	75.4%	1.58x	10.1x	14.3x	2.0x	1.0%	4.0%	28.6%	17.7%
Ingredients Chemicals	6	9.5%	94.0%	4.39x	20.6x	27.3x	2.7x	10.8%	10.6%	40.6%	20.8%
Chemicals Distribution	4	2.0%	79.2%	0.94x	12.8x	15.1x	2.4x	16.7%	21.5%	22.7%	6.8%
Median				**1.64x**	**12.8x**	**15.5x**	**2.0x**	**4.3%**	**10.6%**	**27.9%**	**16.7%**

Source: Capital IQ, ThomsonONE, Wall Street research and company data

Select Q2 2019 M&A Transactions

($ in millions)

Closed	Target Company	Acquiring Company	Enterprise Value	EV / LTM Revenue	EV / LTM EBITDA
Jun-19	Milliken Infrastructure Solutions, LLC	Clock Spring Company, Inc.	-	-	-
Jun-19	Hengshui Kaiya Chemical Co., Ltd.	Rianlon Corporation	$103	2.45x	-
Jun-19	Business and Assets of Rive Technology, Inc.	W. R. Grace & Co.	-	-	-
Jun-19	Bemis Company, Inc.	Amcor Limited	6,778	1.65x	11.8x
Jun-19	Urupema S.A.	GRUPO BITAFAL	2	-	-
Jun-19	Prinova Group LLC	Nagase America Corporation	663	0.85x	-
May-19	Guangdong Polymer Biochemicals Co., Ltd.	Shengli Oilfield Chang'an Holding Group	13	-	-
May-19	Sener Bova Kimya Tekstil Sanayi Ve Ticaret	Bodal Chemicals Limited	6	1.17x	-
May-19	Carbosynth Holdings Limited	Biosynth AG	-	-	-
May-19	Da Vinci Group B.V.	PETRONAS Chemicals Group Berhad	182	-	-
May-19	Avista Technologies	Kurita	84	2.86x	-
May-19	MPM Holdings Inc.	SLJ Partners, KCC Corp., QnC Corp.	2,665	1.04x	7.4x
May-19	Environmental Technology, Inc.	Polytek Development Corp.	-	-	-
May-19	Molecule Corp.	Henkel AG	-	-	-
Apr-19	Chemicals Business Assets of ACETO	New Mountain Capital	442	-	-
Apr-19	Ideal Chemi Plast Pvt. Ltd.	DIC Corporation	-	-	-
Apr-19	LORD Corporation	Parker-Hannifin Corporation	3,675	3.64x	16.5x
Apr-19	Industrial Mixing Solutions Division of Sudarshan	GMM Pfaudler Limited	4	-	-
Apr-19	Specialty Products, Inc.	VersaFlex Incorporated	-	-	-
Apr-19	Assets of Ag Services, Inc.	Wilbur-Ellis Holdings, Inc.	-	-	-
Apr-19	Synalloy Corporation	Privet Fund Management, LLC	309	1.01x	10.9x
Apr-19	VanDeMark Chemical, Inc.	Comvest Partners	-	-	-
Apr-19	DuluxGroup Limited	Nippon Paint Holdings Co., Ltd.	3,082	2.35x	16.5x
Apr-19	Hemmelrath Lackfabrik GmbH	PPG Industries, Inc.	-	-	-
Apr-19	Zhejiang Huafon New Materials Co., Ltd.	Zhejiang Huafeng Spandex Co., Ltd	2,271	1.42x	-
Apr-19	Cirrus Enterprises, LLC	Graco Supply Company, Inc.	-	-	-
Apr-19	Graytone Ltd.	ADDEV Materials SAS	-	-	-
Apr-19	Eco Inhibitors AS	Italmatch Chemicals S.p.A.	-	-	-
Apr-19	TTG, Inc.	Akoya Capital, Landon Capital	-	-	-
Apr-19	Commodity Chemical Business of DHL	Suttons Tankers Limited	-	-	-

Source: Capital IQ, Mergermarket, Pitchbook and company data

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